



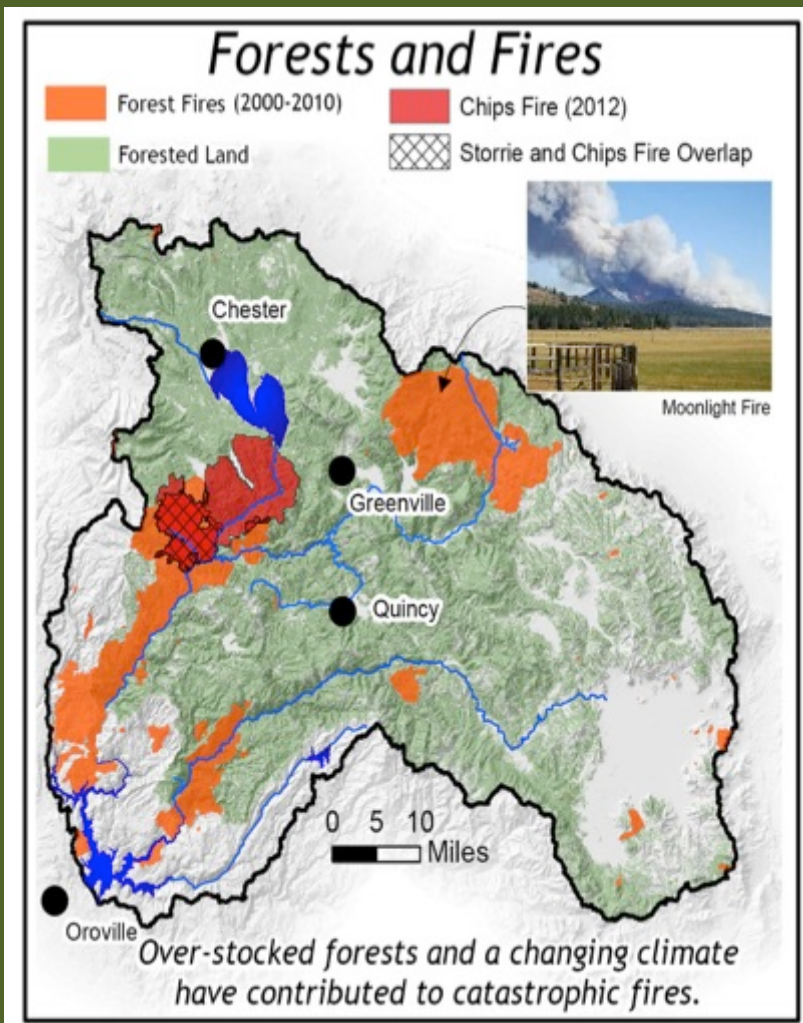
Plumas Energy Efficiency and Renewables Management Action Plan (PEER MAP)

Energizing California's Communities with Renewables:
A Plumas County and Rural Perspective

California Energy Commission
September 21, 2015

Value of Increasing Biomass Utilization

- Reduce fire risk
- Improve forest health
- Improve air quality and reduce black carbon emissions
- Stabilize heating costs
- Create local jobs
- Reduce fossil fuel use
- Utilize abundant, local resource



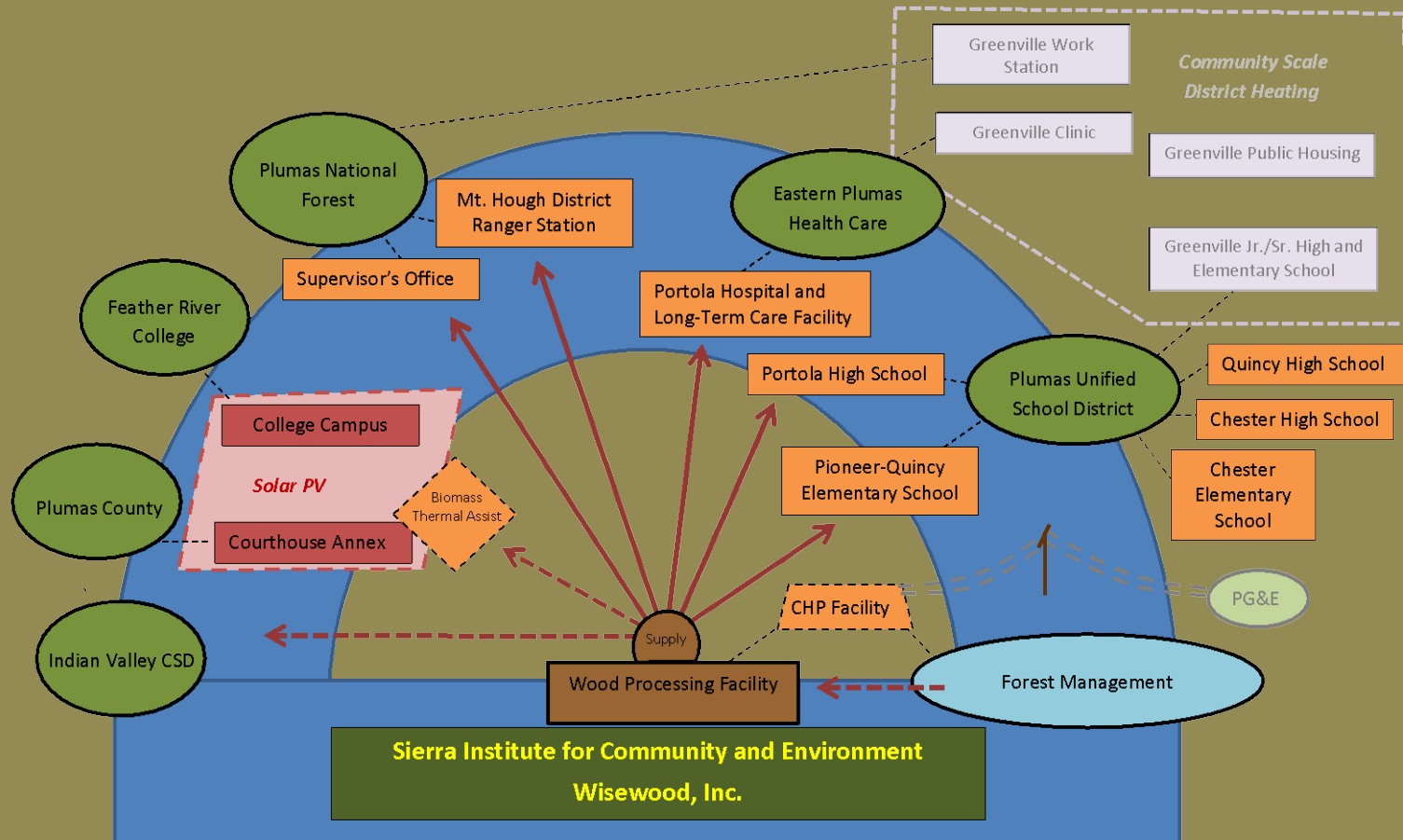
Forest Biomass Material Available from Public and Private Land in the Feather River Watershed Area.

Biomass Material Source	Bone Dry Tons Year	
	Low Range	High Range
Timber Harvest Residuals	81,120	109,750
Fuels Treatment/Restoration/Timber Stand Improvement Activities	51,250	96,250
Fuels Treatment Activities - Fire Safe Council and similar	550	1,150
Total	132,920	207,150

TSS Consultants, 2012, Prepared for the Sierra Institute

The 2012- 20,000 foot plan

Plumas Energy Efficiency and Renewables Management Action Plan (PEER MAP)



○ Participating Organizations

□ Potential Facilities

Stakeholder Outreach

Objectives:

- Identify critical public facilities/issues
- Develop an effective Advisory Body

Plumas County:

- Plumas Unified School District
- Fire Safe Council
- County Officials
- Hospital Administrators
- Feather River College
- Portola City Council
- Plumas National Forest
- Forestry Professionals

Regional:

- US Forest Service
- State Agencies
- UC Berkeley
- State Wood Energy Team
- Biomass Working Group
- Other Communities

ADVISORY BODY

Danielle Banchio, Registered Professional Forester

Nick Boyd, Feather River College Director of Facilities

David Keller, Plumas County Community Development Commission

Charles Plopper, Professor Emeritus, UC Davis

Dony Sawchuk, Plumas County Director of Facility Services

John Sheehan, former Executive Director of Plumas Corporation who conducted biomass studies

Lori Simpson, Plumas County Supervisor District Four

Elaine Vercruysse, Logging Systems Planner with the Plumas National Forest

Randy Wilson, Plumas County Planning Director

Critical Facilities Identification and Assessment

Biomass Thermal Opportunities	Current Heating Costs (annually)	Fuel Type	Gallons Used (annually)	Biomass Used (annually)	Savings (annually)
Portola District Heating Facility					
<i>Eastern Plumas Heath Care</i>	\$ 147,500.00	diesel fuel	37,000	400 bdt	\$25,075.00
<i>Portola High School</i>	\$ 79,500.00	heating oil	22,640	210 bdt	\$13,515.00
<i>Portola City Hall</i>	\$ 4,700.00	propane	2,582	15 bdt	\$799.00
<i>Portola Library</i>	\$ 5,500.00	propane	2,750	15 bdt	\$935.00
<i>Portola USPS Building</i>	\$ 4,000.00	propane	2,300	15 bdt	\$680.00
County HHS/FRC	\$ 135,000.00	electric/Prop.	17,000	800 bdt	\$45,000.00
USFS Supervisors Office	\$ 37,000.00	prop/fuel oil	11,500/3,260	100 bdt	\$24,500.00
USFS Mt. Hough RD	\$ 35,000.00	propane	14,340	115 bdt	\$20,625.00
Greenville K-12 School	\$ 112,500.00	diesel fuel	30,646	275 bdt	\$19,125.00
Chester Heating Facility					
<i>Wildwood Assted. Living Facility</i>	\$ 60,000.00	propane	26,000	175 bdt	\$38,125.00
<i>Seneca Hospital</i>	\$ 80,000.00	diesel Fuel	21,000	210 bdt	\$53,750.00

Green Tons/Acre	10 to 15
Bone Dry Tons/Acre	8 to 12
Avg. price of chips (raw mtrl).	\$60.00
Retail chips/bdt (thermal)	\$125.00
Price of heat	83%

Thermal Network

Total biomass needed	2,330 bdt
Acres treated	200 - 300

3 MW CHP

Total biomass needed	25,000 bdt
Acres treated	2,100 - 3,200

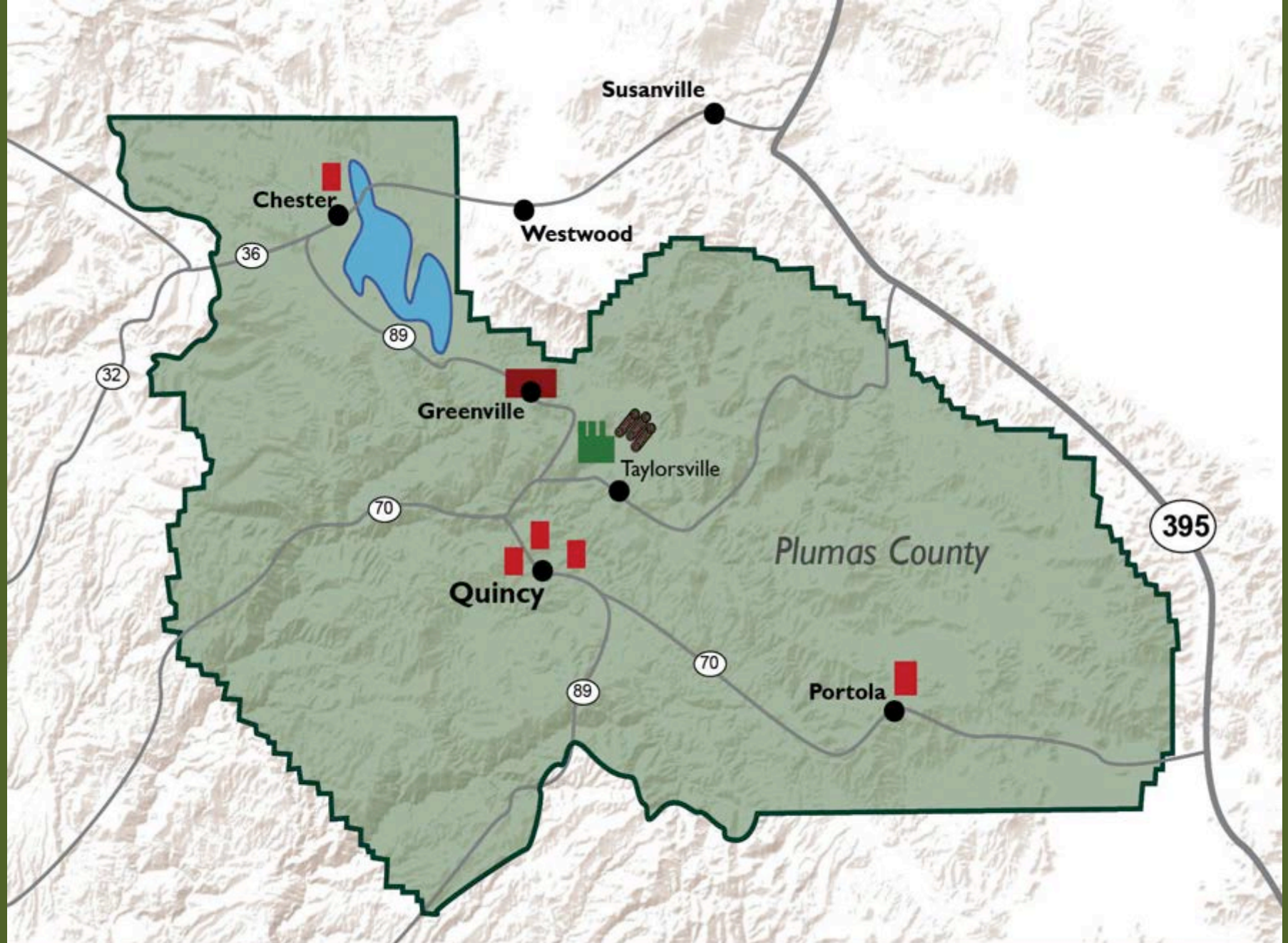
Increased biomass utilization in Plumas County will have the following annual results:

County wide savings	\$197,129
Fossil fuel gallons offset	170,018
Homes powered	3,000
Tons of biomass used	27,000
Acres treated	2,250 - 3,500

KEY

bdt: bone dry ton

CHPcombined heat and power



Stand Alone Boiler



District Heat



CHP Plant



Chip Processing Facility

Crescent Mills Site

Physical Attributes:

- Former LP mill
- Zoned heavy industrial
- Access off HW 89
- Water and power on site
- PG&E Substation

Due Diligence:

- Community/County support
- Phase I & II Environmental Assessment
- Tanks removed
- Contaminated soil removed
- One year well monitoring
- Contract with landowner

Centrally located



Regulatory, Policy, and Institutional Innovation

Tasks:

- Engage Relevant Agencies and Institutions
- Prepare Successful Permitting Pathways

- CEC
- CPUC
- Governors Office
- US Forest Service
- State Wood Energy Team
- Biomass Working Group
- Sierra Nevada Conservancy
- Office of Statewide Health Planning and Development
- Northern Sierra Air Quality Management District
- US EPA/Ecology & Environment
- Plumas County Planning Dept.
- Community Service Districts



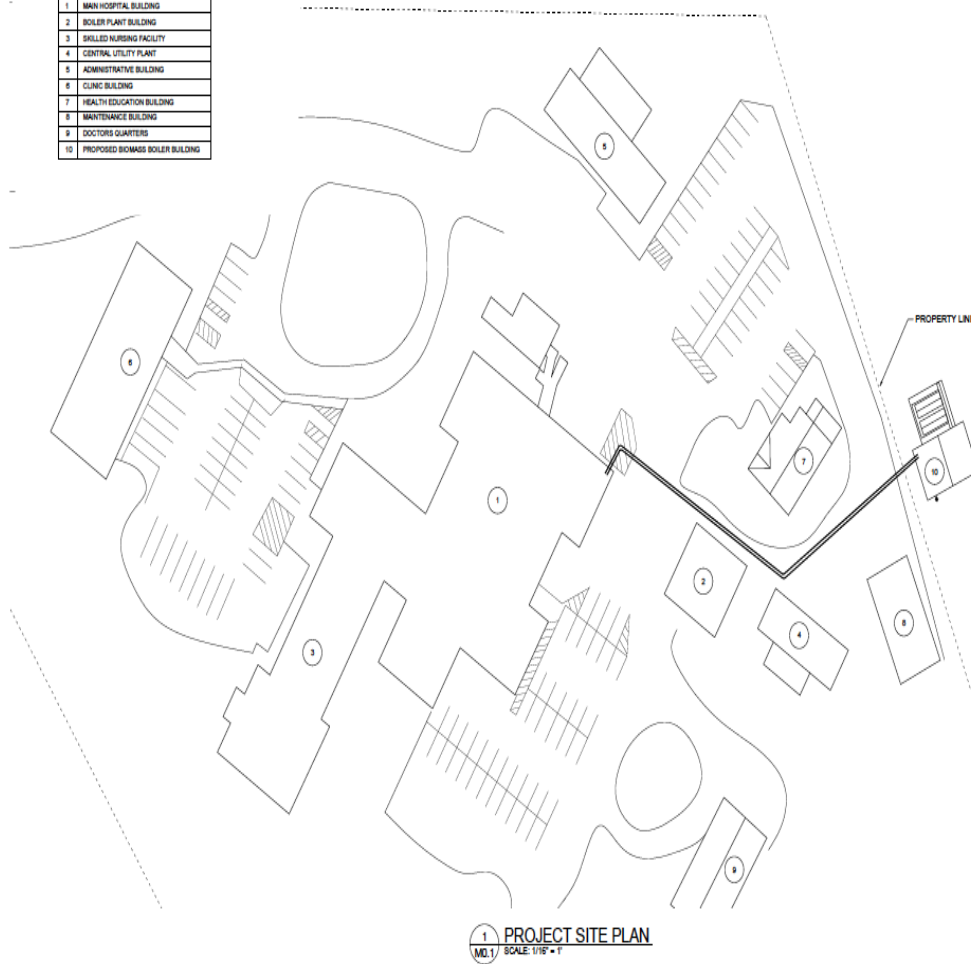
From Planning to Implementation

- Design and engineering at various facilities
 - Work with OSHPD
 - Proposal for boiler at Health and Human Service Building/Feather River College
 - Proposal for preliminary engineering for old court house
 - Proposal for Boiler at Easter Plumas Health Care
 - Secure Processing Site
 - Launch Construction of Chip Processing facility
 - Assist other partners
 - Secure funding
 - Boilers online at PC HHS and FRC and others in process
- Underway; Eastern Plumas Hospital Prelim. Eng. Complete
- Fall 2014/continuing
- Funded! June 2015, Project launch Summer 2015
- Funded! July 2015 (CEC)
- Fall 2015 (Rural Development, Economic Development Adm.)
- September 2015
- October 2015
- Ongoing
- Fall 2016

Eastern Plumas Health Care

EXISTING BUILDINGS

1	MAIN HOSPITAL BUILDING
2	BOILER PLANT BUILDING
3	SKILLED NURSING FACILITY
4	CENTRAL UTILITY PLANT
5	ADMINISTRATIVE BUILDING
6	CLINIC BUILDING
7	HEALTH EDUCATION BUILDING
8	MAINTENANCE BUILDING
9	DOCTORS QUARTERS
10	PROPOSED BIOMASS BOILER BUILDING



EASTERN PLUMAS HEALTH CARE

500 1ST ST AVE
PORTOLA, CA 95122

PROJECT

BIOMASS BOILER INSTALLATION

DESIGN FIRM

WISEWOOD

TEL: 503.636.7366
FAX: 503.718.0463
INFO@WISEWOOD.US
WWW.WISEWOOD.US
2400 N KERRY AVENUE
PORTLAND, OR 97227

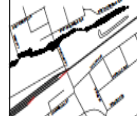
DRAWING TITLE

PROJECT SITE PLAN

REV DESCRIPTION DATE

1 INITIAL REVIEW 10/25/2019

PROJECT LOCATION



DESIGNER'S SEAL

CLIENT'S SEAL

FOR
REVIEW ONLY
NOT FOR
CONSTRUCTION

THIS LINE IS 3 INCHES
AT FULL SCALE
IF IT DOES NOT MEASURE 3
INCHES, SCALE ACCORDINGLY

DESIGN: JAMES

CONTACT: A. HAYDEN

PROJECT: SP42.25

DATE: 10/25/2019

DRAWING NO.

MO.1

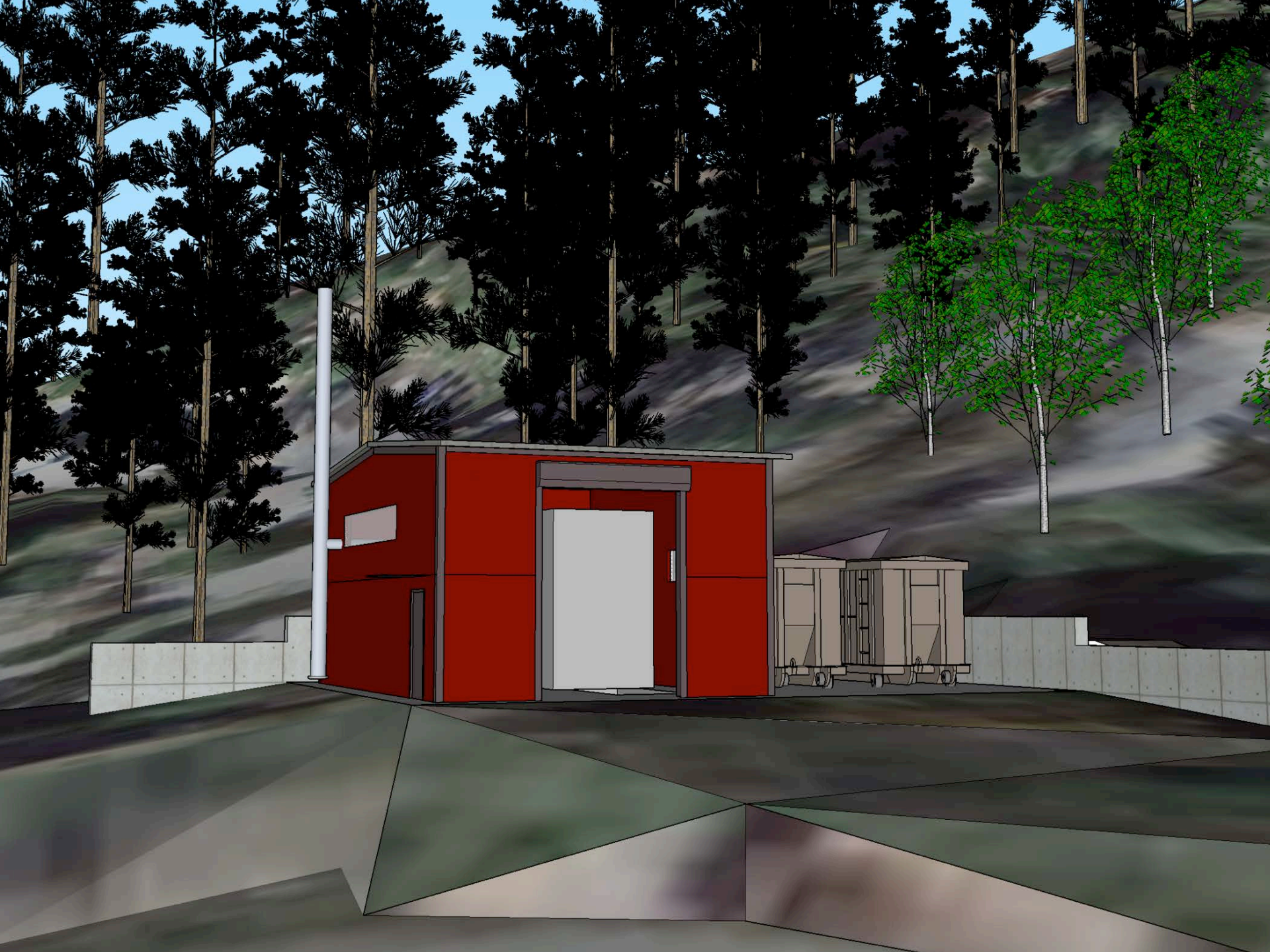
SHEET 2 OF 3



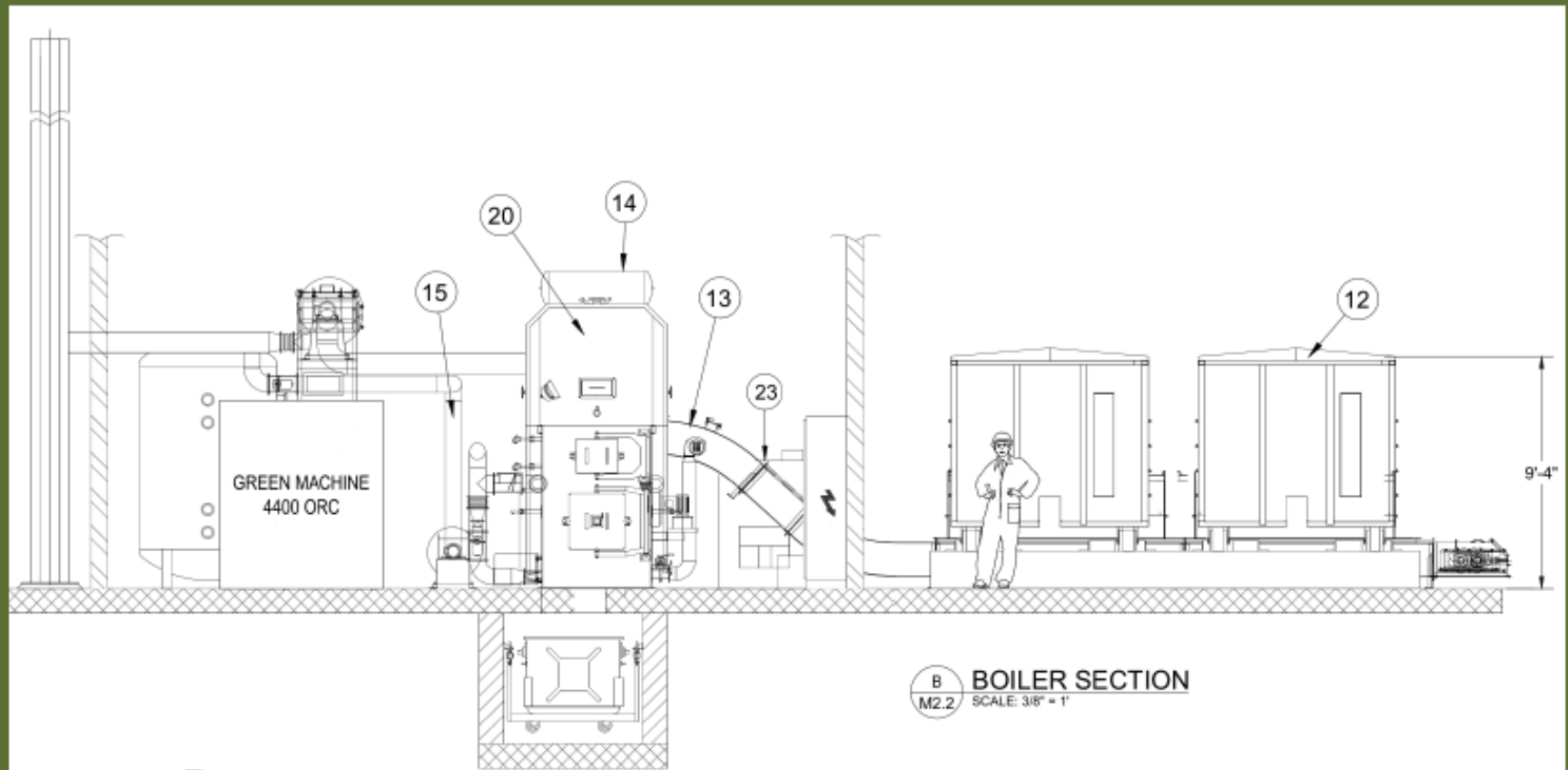
CHP Boiler in Quincy, CA

Project funded under CEC PON-14-307



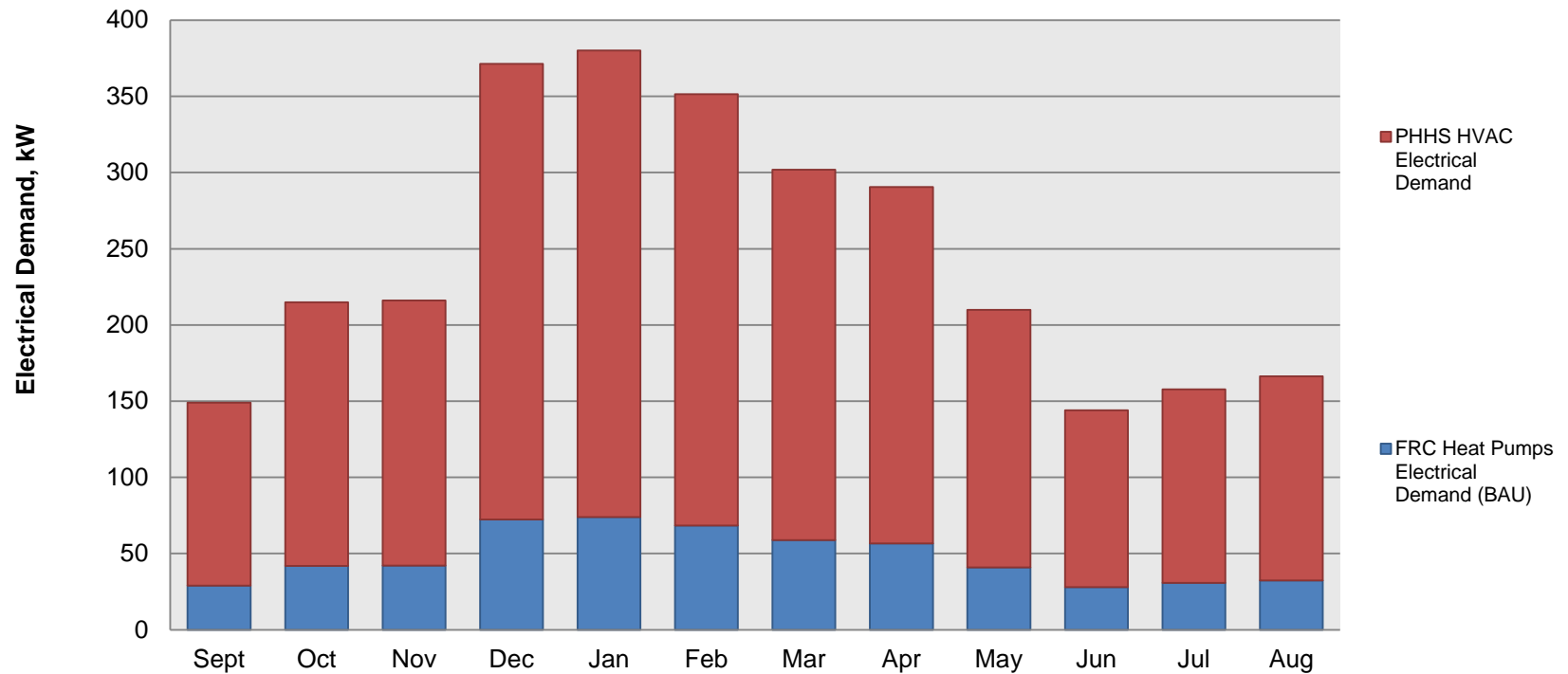


Biomass Boiler System



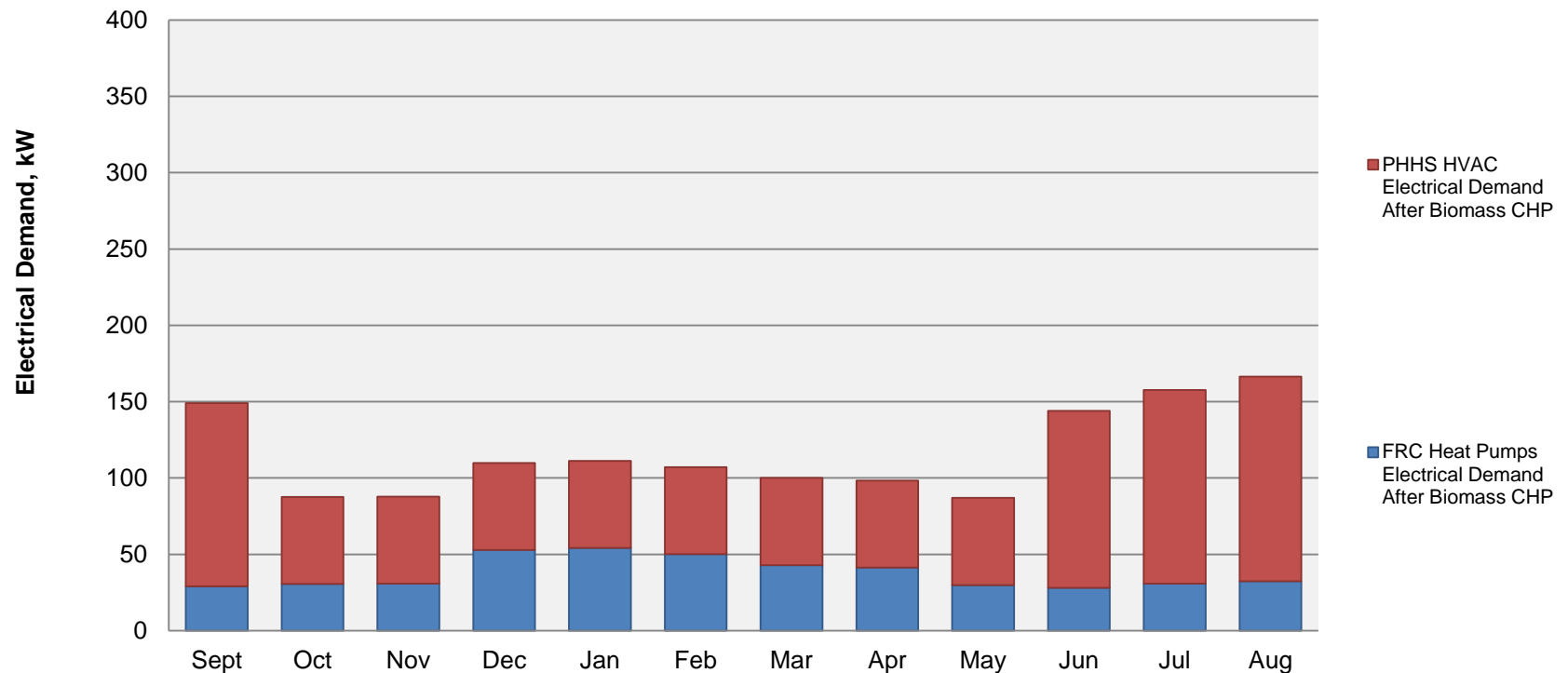
Electrical Demand Reduction

HVAC Peak Load, Business as Usual



Electrical Demand Reduction

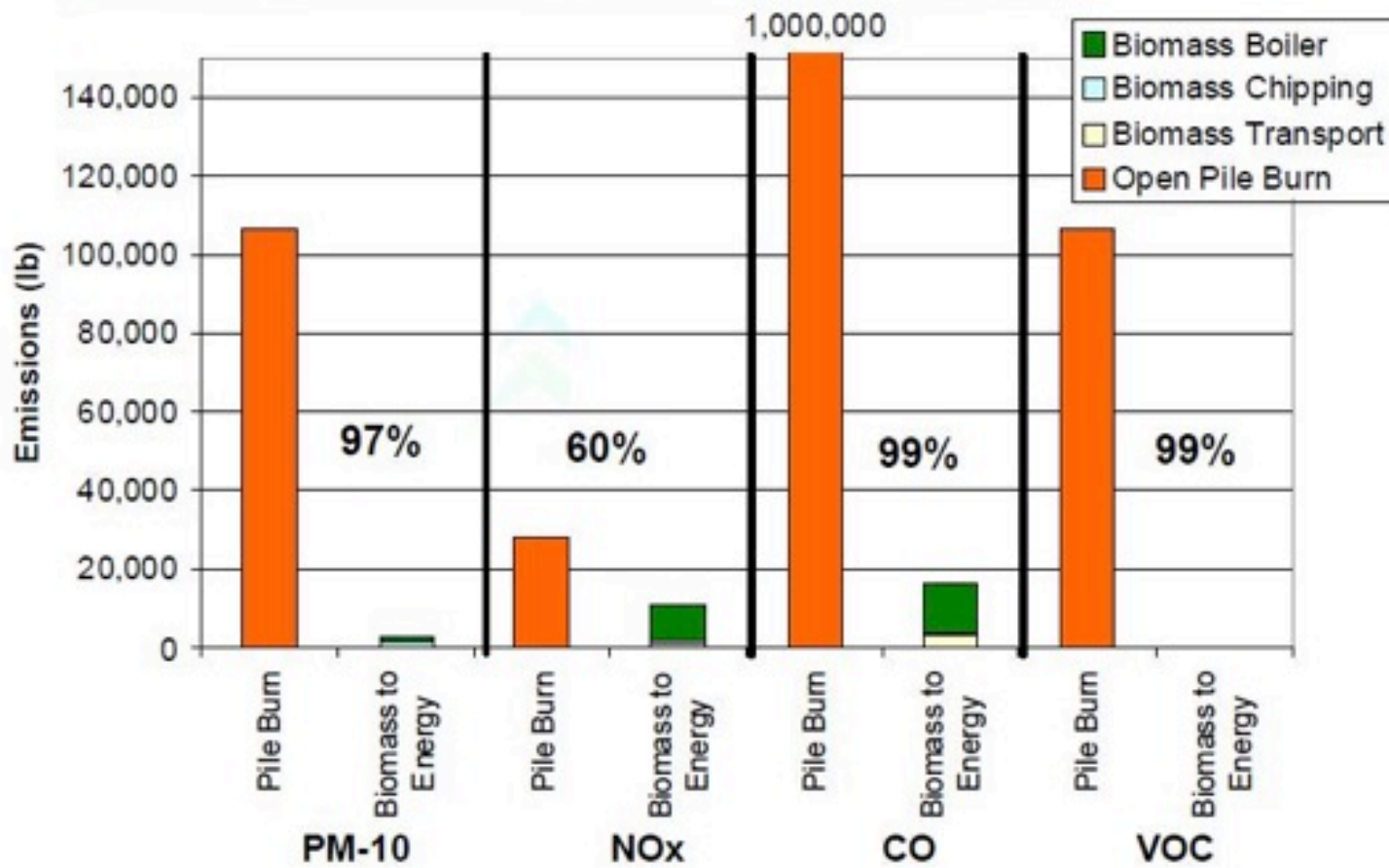
HVAC Peak Load, after Biomass CHP



Air Quality



CRITERIA AIR POLLUTANT REDUCTIONS



Emissions based on burning 5,000 BDT of biomass, Placer County Air District

Moving Projects forward...

Opportunities

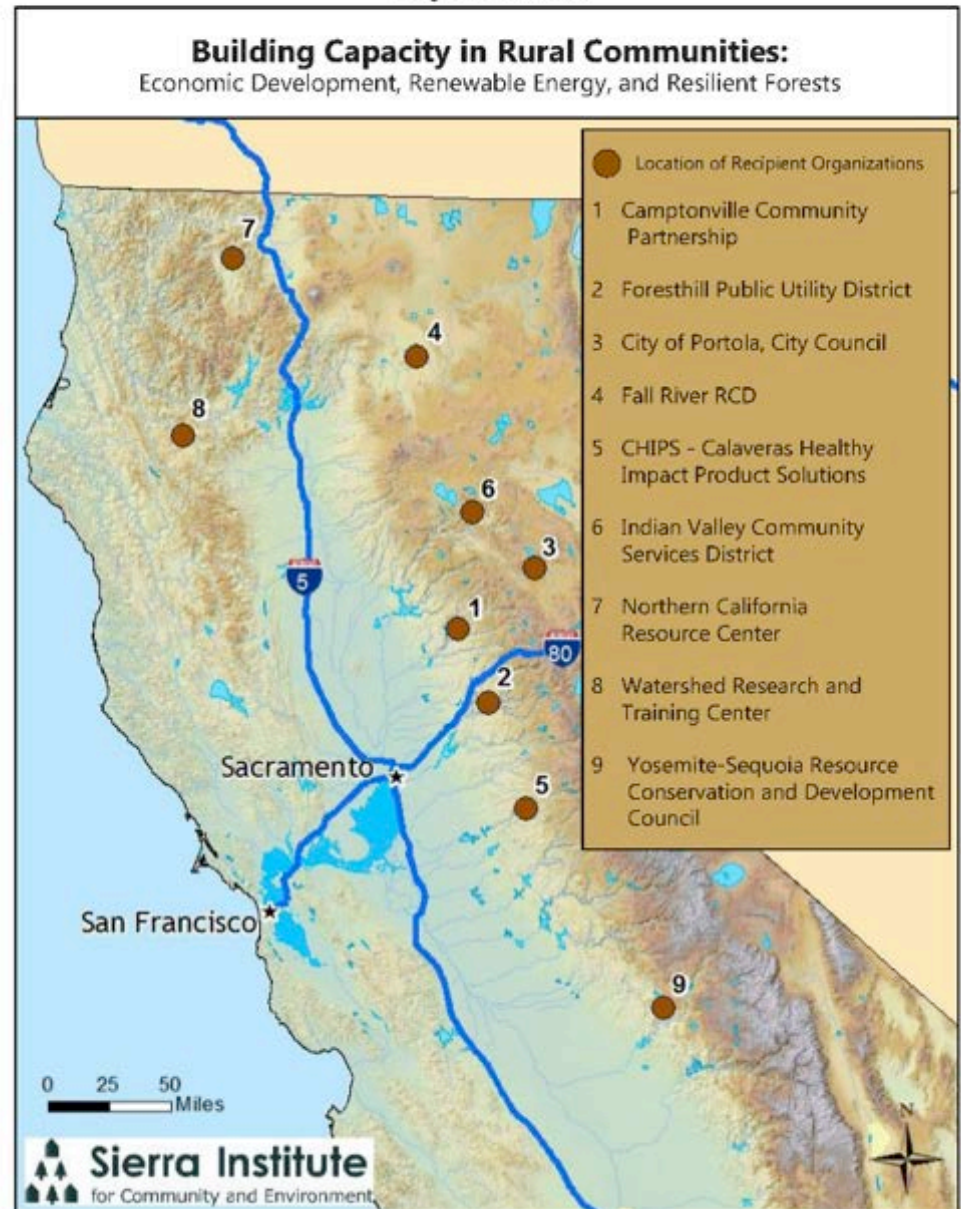
- Community support
- CEC and USFS support
- EPIC funds
- USDA RUS funds
- USDA RCDI funds
- Technology is proving itself
- Catastrophic wildfire: Rim, King, Lake County, Calaveras
- Drought
- State and federal policy
- Local events
- Time

Challenges

- Time
- Support \neq buy in
- Capital costs
- Past failure
- Distrust of unknown
- Questions about fuel supply
- Scale of project
- SB1122 specifics are unknown to locals/ambiguous
- PG&E has disproportionate amount of power
- Lack of state or federal incentives

Advancing Replicability Through Dissemination

- Working with other communities (USDA RCDI grant)
- State Wood Energy Team
- Biomass Working Group





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